

Amendments to the Specification:

Please replace the paragraph beginning at page 3, line 9, with the following rewritten paragraph:

In at least one aspect, the invention provides methods for applying an electrical current through a fluid containing cavity that include the provision of the fluid containing cavity and contacting at least first and second electrodes with the fluid in the fluid containing cavity, the first electrode having a relevant surface area in contact with the fluid in the fluid containing cavity and the second electrode having a second relevant surface area in contact with the fluid in the fluid containing cavity. An alternating current is applied to the fluid in the fluid containing cavity through the first and second electrodes at a first frequency. The first frequency and the relevant surface area are selected to avoid generation of gas bubbles at either of the first and second electrodes.

Please replace the paragraph beginning at page 12, line 24, with the following rewritten paragraph:

Figure 3A schematically shows one embodiment of an electrode geometry in which an exposed surface area of rectangular electrode **300** extends over the entire surface width and a portion of the length of microchannel **302**. Figure 3B schematically depicts a circuit that models a uniform RC transmission line that is electrically equivalent to the electrode configuration depicted in Figure 3A. As shown, the channel's resistance from the leading edge of the electrode is far less than that from the center or trailing edges of the electrode.